Information and Communication Technologies in Moldova

Background

There is almost no reliable sector statistics in ICT sector in Moldova to assess its role and impact on Moldovan economy and society. There are a lot of legends that are based on the lacking information, including opinion about huge shadow incomes in the sector and millions of dollars in software outsourcing services export. However this industry is not much more in grey sector in compare to the rest of Moldovan economy.

Moreover if we exclude telecommunication component the turnover and sales in the rest of the industry are at the very low level and there it is possible to say that there is almost no IT industry in Moldova. There are just separate companies with its products, markets and business models often different and unique. These companies created as a legacy of former USSR and exist in Moldova by occasion now, having no strong local market they sell or favourable local environment for the development of export sales.

ICT sector structure and key players

There are approximately **550 companies** which possess the licences for activity in informatics. Among them there are approximately **90 active** or significant players including those operating in hardware, software and telecommunications.

Telecommunications segment of ICT

The most reliable data are in the sector of telecommunications (fixed, mobile, Internet access) as this activity is a subject of licences and licence holders must give their activity reports to the State Agency for Regulation in Telecommunications and Informatics.

Based on the statistics from the Agency in the year 2004 share of telecommunications in Moldovan GDP was 7.2% composing approximately **USD 180 mill**. Share of **fixed telephony is approximately 57.7%**; share of mobile telephony is 33.4% and share of **Internet access services is around 6.7%** of telecom segment sales.

Mobile operators' networks are in GSM 900. They are Voxtel (France Telecom daughter company) with 659.000 subscribers and Moldcell (Turkcell daughter) with 430.000 subscribers. Total sales of these two operators are **USD 110 mill in 2005**. ARPU (average monthly income per subscriber) is around USD 10. Mobile sector attracts significant investments that are equal USD 35 mill in 2005.

> There are 2 mobile operators in Moldova and more then 1,09 mill of GSM 900 subscribers (~30% of population).
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> Three companies provide fixed telephony with the domination of Moldtelecom in this sector with 99,4% share. The second company in fixed telephone is Moldovan Railway that operates its corporate communication network.
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> There are also 25 active Internet providers in Moldova including those who operate in rural areas. Internet is more developed in Chisinau while rural connectivity is at the very low level.

Number of fixed telephony subscribers reached 886,000. ARPU in fixed telephony is equal USD 13.25. Level of digitalization of telephone lines in Moldova reached 60%. End of 2005 new fixed CDMA 450 wireless network was introduced.

Total Internet connections in Moldova in October 2005 reached **207,671 connections**. This includes also mobile connections through GPRS (137,723 users) technology provided by mobile operators. Total number of Internet users in Moldova is considered to be 700,000. At the moment there is a significant growth in ADSL connections (483% during 10 months of 2005) and penetration of broadband Internet with the speed more than 128 kbps. Total sales of Internet providers during 10 months of 2005 were USD 7.56, including sales of mobile operators equal to USD 6,19 mill.

Main problems in the sector are connected to Moldtelecom monopoly for Internet backbone so all Internet providers in Moldova should by the channel from Moldtelecom. This restricts development of telecommunication networks and still keeps the prices for Internet access very high keeping the quality of connection at low level. Regulations in the segment of telecom and Internet access are key factor for facilitation of the investments.

Other issue is that the development of telecom infrastructure requires investments that are usually not available in Moldova therefore this segment could be a platform for foreign investments in Moldova if necessary political conditions are provided. Two ISP called to CEED project already and their biggest interest is financing of capital investments in cable and network equipment (switches, routers, etc)

Hardware segment

Hardware segment is not that big. The leading importer, manufacturer and retailer of computer hardware in Moldova company RISCOM COMPUTERS had only USD 3.00 mill of sales in 2003. Different assessments (Research of MEPO done end of 2003 and E-readiness Assessment for Moldova done by UNDP project) say that there are **50.000 PC imported yearly** to Moldova and PC penetration is achieving 23 per 100 inhabitants. Big mainframe computers are imported if specific orders come from telecom operators or other companies.

Sector is 100% importing. Companies import hardware components like CPU, RAM, HDD and make assembling of computers “on the knees”. Only RISCOM COMPUTERS started some screw assembling and testing of desktop and laptop computers.

Some Moldovan companies develop and produce hardware including SIM card readers (SIGMA), Electrical Grids Controllers (ADD Group), Gas burning controllers (AFN) or ultra-sonic testers (VOTUM). This hardware is sold in Moldova but most of all it is exported.

Hardware segment serves the needs of domestic industry in PC and other electronic devices. This is almost pure importing segment. Those several companies that develop hardware are serving very niche segments of domestic market and export markets.

Software and services

Software development segment is even smaller. In 2002 according to MEPO research total sales of **software development was USD 17.3 mill**. And this looks like a realistic figure. Share of IT related services is less then USD 500.000. This is very important indicator that shows development of e-society. In the developed countries share of IT related services is equal to 50%.

There are several groups of companies in the sector:

There are two models for ICT sector development. One model is export oriented and looks at export sales and outsourcing. Best example is India and Ireland.

However other countries like Australia and to some extend Estonia were looking at the adoption of ICT in the domestic industry and public sector. This helped them to reach significant advantages in traditional productions or public management.

First group is composed from the exporters of their own products / solutions. These are RIT Labs, Dekart, DCS Laboratory, SoftCom and Alfa-XP. Companies have small sales of several thousand dollars (to USD 1 mill max) worldwide. Sales are going through the Internet. Products are technically well developed and advanced however there is almost no promotion and sales and maintenance force at the export markets.

Second group of exporters of outsourcing services.

Main players are Compudava, Pulsar, NetInfo, Alfa-XP (this company provide both services). Usually in this segment key players are foreign companies that recruit programmers to work in Moldova and abroad. Main recruiters are Echo Technologies, Allied Testing, Est Computer. There main concern is the development of local labour force including certification of programmers, proper procedures. Some of these companies are the channels for emigration of professionals abroad. There are also some small and relatively big companies or group of programmers who work distantly for foreign customers providing them outsourcing services.

Third group is companies playing on the local market. Major companies are in Web development. Other companies are in banking software and financial accounting software as this are the most popular products and services needed. Companies have their solutions or localize solutions of other vendors. Some companies develop customer oriented information systems. Main players are:

- Web design: Deeplace, CreaCord, Design.MD
- Banking solutions: F-line technologies, Deeplace, Q-systems, Darvo
- Accounting software: UnisimSoft, Abandant, WizContabil (Abandant and WizContabil just distribute imported solutions in Moldova)
- Information systems: Daac Sistem, Kvazar-Micro, SoftCom, Intexnauca

Segment is composed from several big players and a number of weak companies that in the same time often have promising solutions.

Software segment is the most fragmented and companies are different by size, technologies, experience, project management practices, markets they serve, etc. Except several established firms like Compudava, RIT Labs, Dekart the rest of the industry suffers from migration of labour force being shrunken when there are no orders coming and attracting workforce in the "good time".

Resources and production processes

Excellent IT workforce is the other legend of ICT sector in Moldova. There are good professionals in the industry of course however they are not too many to make Moldova ICT centre even in the region. Nearest Romania or Ukraine (I do not talk about India) maybe have the same percentage of IT professionals to total number of graduates but total figure is much bigger so it is bigger area for skills search.

Different assessments say that there are from **2,000 to 6,000 ICT specialists** in Moldova. Every year 6 high schools and one collage produces approximately **300 graduates with ICT diplomas**. There is different opinion about quality of graduates. Some IT managers say that only 5% are real talents and up to 30% in total could work in their companies. The rest of the graduates are out of interest.

> Recruiting of IT specialists in Moldova became an ongoing process. At the popular recruiting web page www.moldovajob.com there are permanent publications about IT specialists needed for several companies to work in USA, EU or Russia.
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> Wages in the industry start from USD 250 and reach USD 1,500 and more. Average wage is around USD 700 that makes domestic companies less competitive in compare to Western recruiters.

Certification of specialists is at the basic level. Only few companies pay for training and certification of their employees including Compudava, Alfa XP. Those specialists who are willing to work abroad or in the international companies do this from their own costs. In Moldova only **CISCO training courses** are available. For other certification courses and trainings people go to nearest Romania or Ukraine.

Production processes within the companies are not standard for all industry. Each company has its own approach and due to the fact that majority of the companies are small (5 to 10 programmers) the most of the processes are not formalized. Only one company in Moldova (Deeplace) has ISO 9000 certification of production process however this is not much applicable for IT. The preparations for ISO 9000 is also done by Compudava.

Western companies like Compudava, Alfa XP and some others brought their own processes and standards in the development process and use them.

Access to finance

For software companies to get access to finance is very difficult. Banks provide financing and loans for investments in hardware and capital buildings. Software companies attract financing mainly for wages and promotion and usually have no mortgage.

There is no venture capital or developed corporate securities market in Moldova to serve ICT sector. Therefore this sector develops from personal savings of the owners of IT companies or retained profits.

Legal framework, government policy and sector associations

Legal framework in Moldova is not adapted for high tech business at all. Such issues as copyright protection, taxation or labour regulations are restricting development of ICT sector in Moldova.

Just several examples identified during the meetings with ICT companies:

- Programmer who works in the company after 3 years has all copyright for the programme code he developed. So company should pay him special fee to use this code
- Company spending money for training of its programmer should treat this as his salary and pay all the social and income taxes that are paid from the salary
- VAT recovery from IT export is a constant fight between private sector and the state.

A good example if the initiative of special taxation rate for IT companies introduced end of 2004. The amendments to Tax Code introduced zero profit tax for IT companies and fixed low social security tax and personal income tax. However only 3 companies applied for the tax benefits.

All these issues restrict the development of the sector and cause emigration of IT professionals.

There is no sector association to protect the companies and their interests.

Possible drivers and opportunities for Moldovan IT sector

In spite of all constrains and difficulties ICT sector in Moldova is booming. This is connected to several key driving forces:

- At the domestic market Moldovan Government launched e-Governance initiative that includes development of different services to the population and business through the Web, e-document flow in the state authorities and development of PKI infrastructure. This means that a number of real contracts will be given for the private sector.

- Consumers' boom connected to the inflow of money from Moldovan guest workers who travelled to work in EU or Russia. Having their families in Moldova these people send money and buy computers and Internet connections to their children.

- Private sector initiatives including e-banking, implementation of MIS in traditional business like wine making, transporting and agriculture, and to some extend e-commerce. Growing interest of traditional business to IT systems for management and automation of production processes generates some demand for domestic IT companies.

- Shortage of IT labour force worldwide generates demand for outsourcing services and IT professionals from the Southern Eastern Europe. This sector is driven by foreign companies who recruit IT professionals here.

All these factors create demand and facilitate the development of the companies from all three groups that are doing system integration, web design and development, sales of hardware or Internet access and attract foreign companies to establish their subsidiaries in Moldova.

The sector is growing and there are almost no idle resources for the ICT development in Moldova as good IT professionals become scared and there is only structured un-employment in the sector if any.

Key findings and recommendations

Growth in the sector impacts all ICT companies in Moldova including telecoms, software developers and hardware retailers. Further assistance could generate bigger demand and facilitate development of specific groups of companies in Moldova.

In the company profiles there will be an indicator of the specific group.

No	Group of companies (expected results)	Specific assistance needed (by priority)
1.	Telecoms and ISP (cheaper costs for telecom services, more services and sales, investments)	o Liberalization of telecom regulations and policy o Attraction of investments in the development of telecom infrastructure o Application for other programmes, i.e. Last Mile Initiative
2.	Domestic and international companies providing outsourcing (Growth of IT outsourcing services export from Moldova. Growth potential is limited to the available resources and to achieve significant sales we shall take over skills from other companies or need to develop them)	o Improvement of business environment in Moldova including: - labour regulation - taxation and cost allocation practices - copyright legislation o Development of training and certification facilities for local stuff including IT professionals trainings and certification o Development of head hunting and recruiting infrastructure with strong HR companies, transparent labour market and tuning of IT professionals
3.	Domestic companies exporting their packaged products and branded	o Development of connections and market leads at the target markets

	services (growth of IT products export that is not connected to the labour force availability and could reach several mill of USD during the first year)	o Development of local expertise in marketing management and promotion o Improvement of business environment in Moldova
4.	Domestic companies producing their solutions for the domestic market (growth of the sales at the domestic market that is estimated as USD 50 mill of initial sales + 20% for maintenance and development)	o Support of initiative which generate demand for ICT (e-Governance, e-Commerce, CAD-CAM) o Development of local expertise in marketing management and promotion o Improvement of business environment in Moldova